$$5 \times \text{सम (even)} = 0$$

$$5 \times \text{विषम (odd)} = 5$$

$$5 \times \text{सम (e)} \times \text{विषम (o)} = 0$$

25×18

$5 \times 5 \times 3 \times 3 \times 2$

0

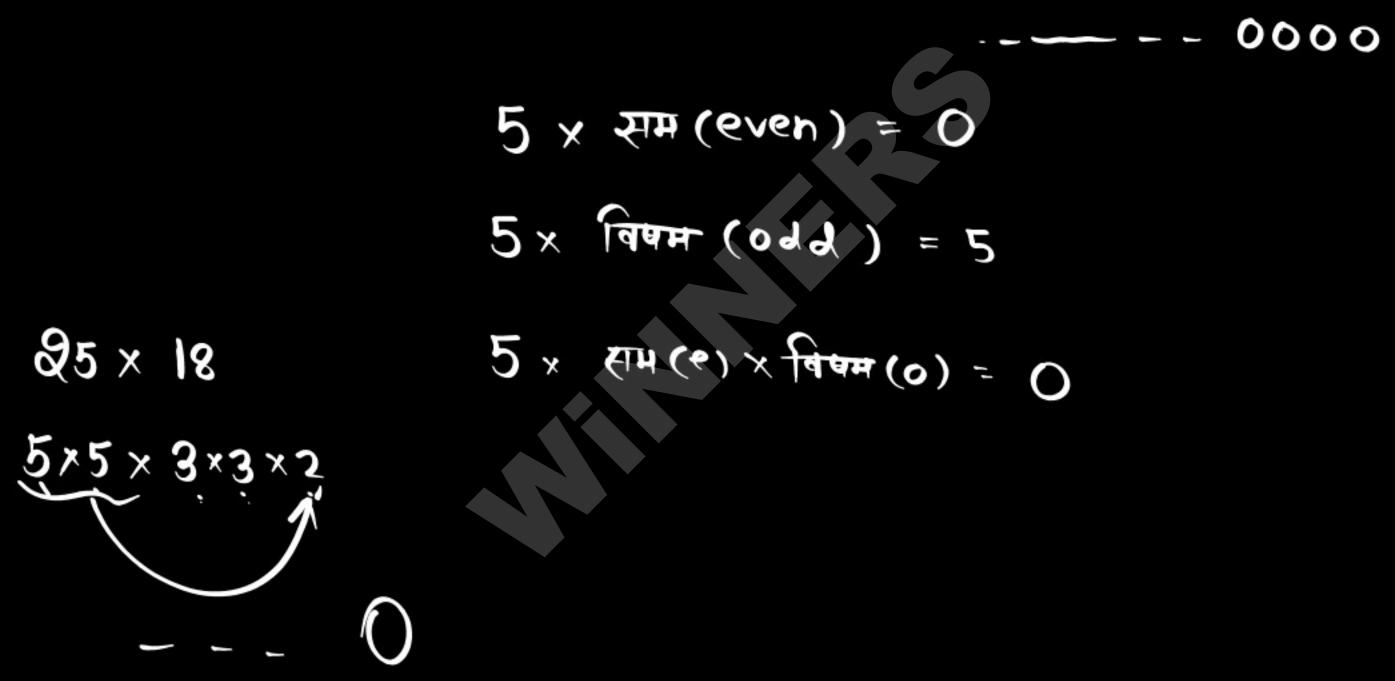**1.** शून्यों की संख्या ज्ञात कीजिए / **Find number of Zeros in**
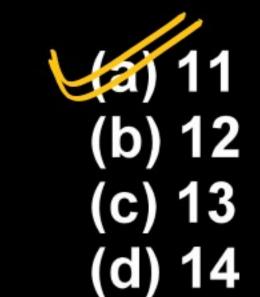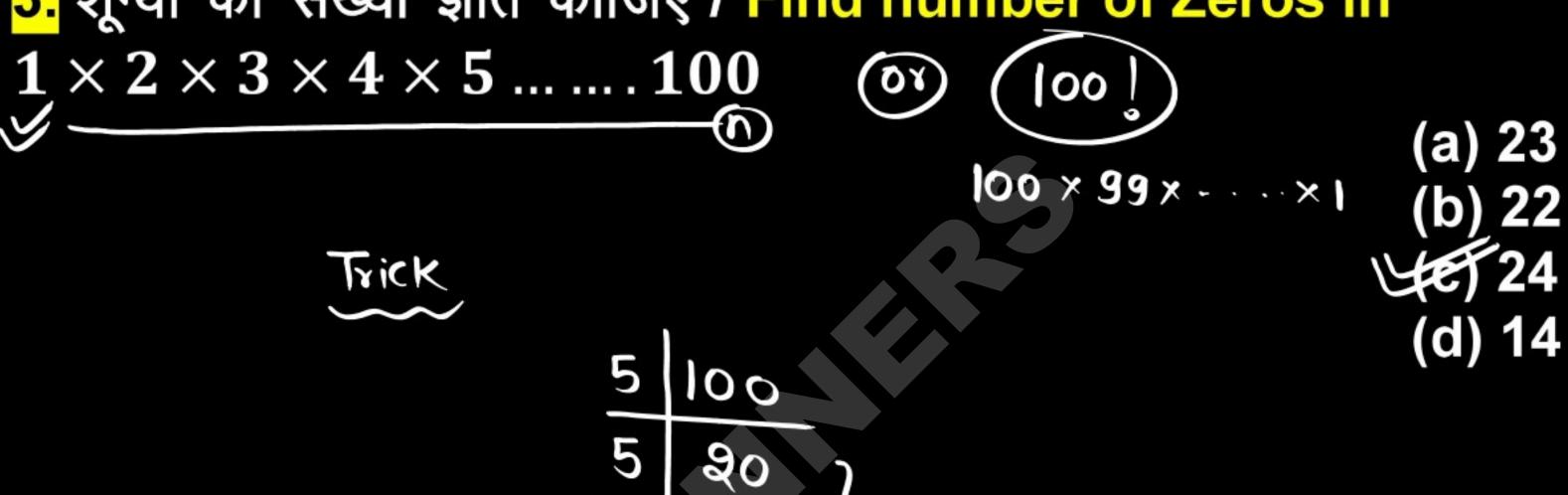
$75 \times 256 \times 2250 \times 79 \times 88$

(a) 5
(b) 6
(c) 7
(d) 8

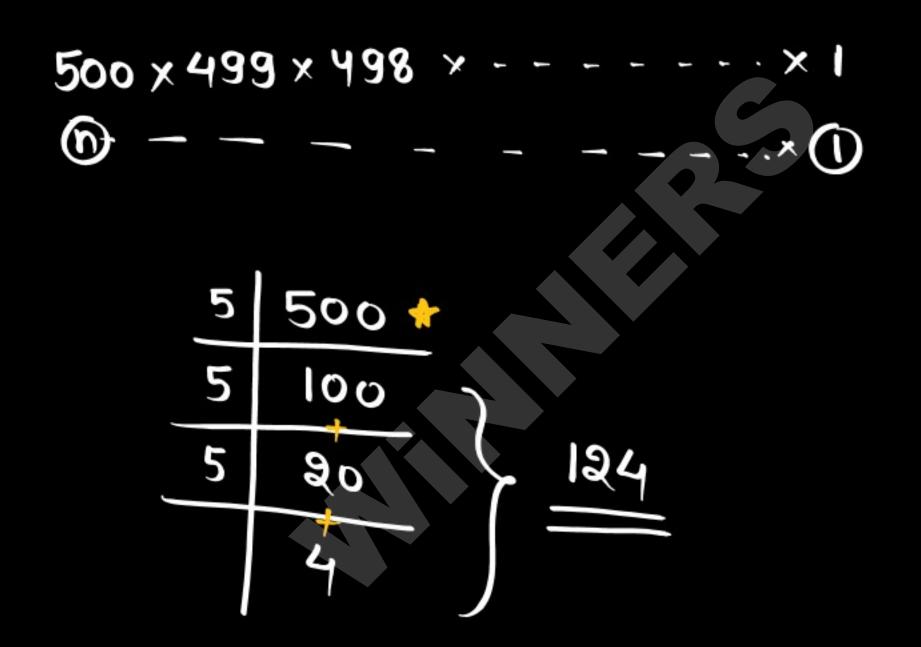**2.** शून्यों की संख्या ज्ञात कीजिए / Find number of Zeros in

$$2^9 \times 3^{11} \times 2^7 \times \boxed{5^7} \times 7^6 \times 8^9 \times \boxed{10^4}$$

$$\overset{⑦}{5} \times \overset{④}{5} \times 2^4$$

$$\underset{5}{\parallel}$$

(a) 11

(b) 12

(c) 13

(d) 14

3. शून्यों की संख्या ज्ञात कीजिए / Find number of Zeros in

$1 \times 2 \times 3 \times 4 \times 5 \ldots \ldots 100$ ⟶ ⓝ or $\boxed{100\,!}$

$100 \times 99 \times \cdots \times 1$

(a) 23

(b) 22

(c) 24

(d) 14

Trick

$$
\begin{array}{c|c}
5 & 100 \\
\hline
5 & 20 \\
\hline
 & 4
\end{array}
\Bigg\} \quad \underline{\underline{24}}
$$

Maths by Aditya Patel Sir

4. शून्यों की संख्या ज्ञात कीजिए / **Find number of Zeros in** $500!$

(a) 124
(b) 116
(c) 125
(d) 126

$$500 \times 499 \times 498 \times -------- \times 1$$

$$n ------------------ \times 1$$

$$
\begin{array}{c|c}
5 & 500 \, \star \\
\hline
5 & 100 \\
\hline
5 & 20 \\
\hline
 & 4
\end{array}
\Bigg\} \quad \underline{\underline{124}}
$$

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5. शून्यों की संख्या ज्ञात कीजिए / Find number of Zeros in

$$1 \times 2 \times 3 \times 4 \times \ldots \ldots \times 377 \times 378 = ?$$

(a) 90

(b) 93

(c) 100

(d) 85

OR

$$378!$$

$$
\begin{array}{c|c}
5 & 378 \\
\hline
5 & 75 \\
\hline
5 & 15 \\
\hline
 & 3
\end{array}
$$

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6. शून्यों की संख्या ज्ञात कीजिए / Find number of Zeros in
$2346! = ?$

(a) 583
(b) 580
(c) 483
(d) 120

$$
\begin{array}{c|c}
5 & 2346 \\
\hline
5 & 469 \quad + \\
\hline
5 & 93 \quad + \\
\hline
5 & 18 \quad + \\
\hline
 & 3 \quad + \\
\end{array}
\right\} \quad \underline{583}
$$

7. शून्यों की संख्या ज्ञात कीजिए / Find number of Zeros in

$$4 \times 8 \times 12 \times 16 \times \ldots \ldots \times 560$$

(a) 35

(b) 34

(c) 36

(d) 40

$$\overbrace{4 \times 1} \times \overbrace{4 \times 2} \times \overbrace{4 \times 3} \times \ldots \ldots \times \overbrace{4 \times 140}$$

$$4^{140} \left(1 \times 2 \times 3 \times \ldots \ldots \times 140 \right)$$

$$
\begin{array}{c|c}
5 & 140 \\
\hline
5 & 28_{+} \\
\hline
5 & 5_{+} \\
\hline
& 1
\end{array}
\Big\} 34
$$

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8. शून्यों की संख्या ज्ञात कीजिए / Find number of Zeros in

$$1 \times 3 \times \boxed{5} \times 7 \times 9 \times 11 \times \ldots \ldots \times 101$$
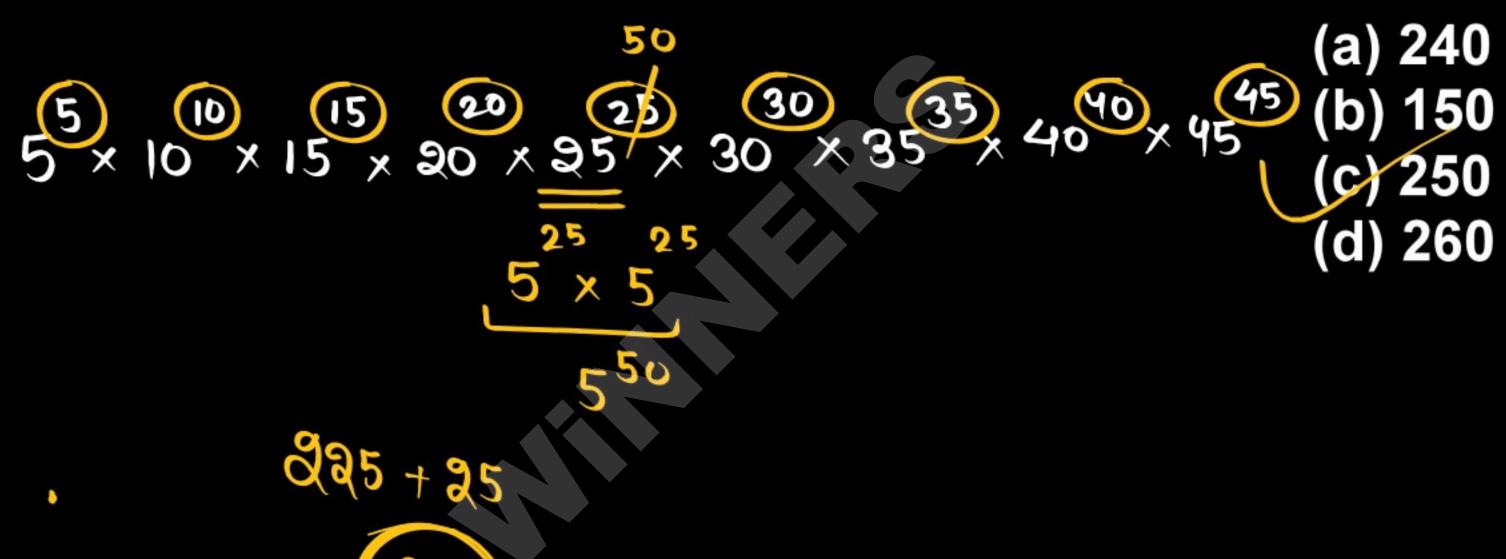
(a) 15

(b) 16

(c) 13

(d) No Zeros

9. शून्यों की संख्या ज्ञात कीजिए / Find number of Zeros in
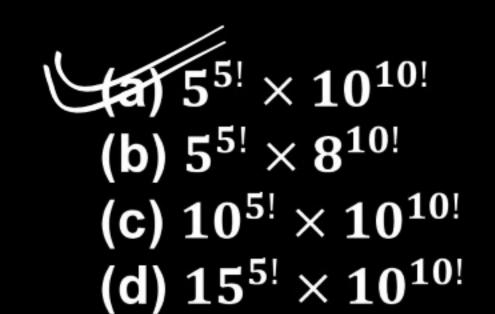
$$1^1 \times 2^2 \times 3^3 \times 4^4 \times \ldots\ldots\ldots\ldots \times 49^{49}$$

(a) 240

(b) 150

(c) 250

(d) 260

$$\underset{5}{\textcircled{5}} \times \underset{10}{\textcircled{10}} \times \underset{15}{\textcircled{15}} \times \underset{20}{\textcircled{20}} \times \underset{25}{\overset{50}{\cancel{\textcircled{25}}}} \times \underset{30}{\textcircled{30}} \times \underset{35}{\textcircled{35}} \times \underset{40}{\textcircled{40}} \times \underset{45}{\overset{}{45}}\textcircled{45}$$

$$\underset{5 \times 5}{\overset{25 \quad 25}{\underbrace{5 \times 5}}}$$

$$5^{50}$$

$$225 + 25$$

$$\boxed{250}$$

10. शून्यों की संख्या ज्ञात कीजिए / **Find number of Zeros in**

$$1^{1!} \times 2^{2!} \times 3^{3!} \times 4^{4!} \times \ldots\ldots\ldots\ldots \times 10^{10!}$$

$$5^{5!} \times 10^{10!}$$

(a) $5^{5!} \times 10^{10!}$

(b) $5^{5!} \times 8^{10!}$

(c) $10^{5!} \times 10^{10!}$

(d) $15^{5!} \times 10^{10!}$

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11. शून्यों की संख्या ज्ञात कीजिए / **Find number of Zeros in**

$3200 + 1000 + 40000 + 32000 + 15000$

Minimum

(a) 2
(b) 3
(c) 4
(d) 5

$$
\begin{array}{r}
3200 \\
1000 \\
40000 \\
32000 \\
15000 \\
\hline
200 \\
\hline
\end{array}
$$

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12. शून्यों की संख्या ज्ञात कीजिए / **Find number of Zeros in**

$$3200 \times 1000 \times 40000 \times 32000 \times 15000$$

$5 \times 3 \times 1000$

$15 + 1$

(a) 15
(b) 16
(c) 13
(d) 14

13. शून्यों की संख्या ज्ञात कीजिए / **Find number of Zeros in**

$$10^1 \times 10^2 \times 10^3 \times 10^4 \times 10^5 \dots \dots \dots \times 10^{10}$$

(a) 55 ✓

(b) 56

(c) 53

(d) 54

$$10^{(1+2+3+\cdots+10)}$$

$$10^{55}$$

$$(5 \times 2)^{55}$$

$$\frac{n(n+1)}{2}$$

$$\frac{10 \times 11}{2}$$

$$55$$

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15. शून्यों की संख्या ज्ञात कीजिए / **Find number of Zeros in**

$$(3^{123} - 3^{122} - 3^{121}) \times (2^{121} - 2^{120} - 2^{119})$$

(a) 5

(b) 6

(c) 3

(d) 1

$$3^{121}(3^2 - 3^1 - 1) \times 2^{119}(2^2 - 2^1 - 1)$$

$$3^{121}(9 - 3 - 1) \times 2^{119}(4 - 2 - 1)$$

$$3^{121} \times \boxed{5} \times 2^{119} \times 1$$

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16. शून्यों की संख्या ज्ञात कीजिए / **Find number of Zeros in**

$$5 \times 10 \times 15 \times 20 \times 25 \times \ldots\ldots 75$$

(a) 11
(b) 16
(c) 13
(d) 10

$$\overbrace{5 \times 1} \times \overbrace{5 \times 2} \times \overbrace{5 \times 3} \times \ldots\ldots \times \overbrace{5 \times 15}$$

$$5^{15} \left(1 \times 2 \times 3 \times \ldots\ldots \times 15 \right)$$

$$5 = 18 \text{ बार}$$

$$\begin{array}{c|c} 5 & 15 \\ \hline & 3 \end{array}$$

$$\begin{array}{c|c} 2 & 15 \\ \hline 2 & 7 \\ \hline 2 & 3 \\ \hline & 1 \end{array} \Big\} \, 11$$

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17. संख्यायें 2, 4, 6, 8....98, 100 का परस्पर गुणा किया जाता है, तो गुणनफल के अंत में शून्य की संख्या कितनी होगी ?

The number 2, 4, 6, 8....98, 100 are multiplied together. The number of zeros at the end of the product must be:

(a) 13
(b) 12
(c) 11
(d) 10

$$2 \times 4 \times 6 \times 8 \times 10 \times \cdots \cdots \times 98 \times 100$$

$$\overline{2 \times 1} \times \overline{2 \times 2} \times \overline{2 \times 3} \times \cdots \times \overline{2 \times 49} \times \overline{2 \times 50}$$

$$2^{50} \left(1 \times 2 \times 3 \times \cdots \cdots \times 50 \right)$$

$$
\begin{array}{c|c}
5 & 50 \\
\hline
5 & 10 \\
\hline
& 2
\end{array} \Bigg\}
$$

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